

1 WHAT IS CLAIMED IS:

2 1. Apparatus for use in draining, cleaning and refilling an
3 aquarium tank comprising:

4 a) an elongated flexible hose having first and
5 second opposite ends;

6 b) a tube including an upper distal end for connec-
7 tion to said first end of said flexible hose, and a lower
8 distal end adapted to be immersed in the aquarium tank
9 such that said lower end may be placed near the bottom of
10 the aquarium tank;

11 c) a first means attachable to said second end of
12 said flexible hose and for connection to a flowing water
13 source for creating a flow of water from the tank through
14 said tube and said flexible hose; and,

15 d) a grille, defined by a chamber and including a
16 plurality of apertures formed in the walls thereof that
17 are narrower than the width of the gravel particles, said
18 grille and chamber attached to said lower distal end of
19 said tube for contact with the gravel for moving the
20 gravel about the floor of the tank such that the gravel
21 particles are forced by said movement to bump and rub
22 against each other outside said tube to dislodge the sedi-
23 ment and impurities that have gathered therewith, and
24 wherein said sediment and impurities are swept by said
25 water flow through said apertures into said chamber, up
26 said tube and through said hose for discard without the
27 entrance of gravel into said tube or hose.
28

3/6 52/5
1 2. The apparatus of Claim 1 wherein said first means comprises:

2 a) a base containing a main faucet water transfer
3 tube having spaced-apart top and bottom terminal ends,
4 including a cap for attaching said top end of said tube
5 in axial, watertight alignment with the outlet of a
6 standard faucet for directing a flow of faucet water
7 downward, through said tube and out said bottom end
8 thereof toward a drain;

9 b) said transfer tube having a narrower diameter
10 section intermediate said terminal ends for providing a
11 venturi effect; and,

12 c) a side tube interconnected said main faucet water
13 transfer tube, in the area of said narrower diameter, and
14 containing means for attaching one end of said flexible
15 hose thereto.

16 52/5
17 3. The apparatus of Claim 1 further including a second means
18 for causing selective and alternative flow of water from the aquarium
19 tank through said tube and said elongated flexible hose to drain
20 water from the tank and, in addition, causing a flow of water from
21 said flowing water source through said hose and said tube for
22 refilling the aquarium tank.

23 1
24 4. The apparatus of Claim 3 wherein said first and second means
25 comprise:

26 a) a base containing a main faucet water transfer
27 tube having spaced-apart top and bottom terminal ends,
28 including a cap for attaching said top end of said tube

1 in axial, watertight alignment with the outlet of a
2 standard faucet for directing a flow of faucet water
3 downward, through said tube and out said bottom end
4 thereof, toward a drain;

5 b) said transfer tube having a narrower diameter
6 section intermediate said terminal ends for providing a
7 venturi effect;

8 c) a side tube interconnected said main faucet water
9 transfer tube, in the area of said narrower diameter, and
10 containing means for attaching one end of said flexible
11 hose thereto; and,

12 d) a valve mounted to said tube bottom end including
13 a shut-off plate transversely mounted for reciprocal
14 motion from a first position apart from said bottom tube
15 end, for permitting passage therethrough of faucet water,
16 sediment, and impurities along with the aquarium tank
17 water, and a second position against said bottom tube end,
18 for shutting off the flow of water therethrough and
19 diverting faucet water out said side tube through said
20 flexible hose into said tube and into the aquarium.

21
22 5. The apparatus of Claim 1 wherein said grille has some
23 portion thereof in contact with the water at all times to provide
24 an uninterrupted flow of water through said grille, said tube and
25 said flexible tube at all times that said grille is immersed in the
26 water.

6. The apparatus of Claim 1 wherein said tube is formed of separate pieces that may be attached together in end-to-end fashion.

7. The apparatus of Claim 1 wherein said tube is greater in diameter than said flexible hose.

8. The apparatus of Claim 1 wherein said tube is the same diameter as said flexible hose.

9. The apparatus of Claim 1 wherein said grille is attached to said bottom end of said tube across the full open end of said tube.

10. The apparatus of Claim 1 wherein said grille is permanently attached to said bottom end of said tube.

11. The apparatus of Claim 1 wherein said grille is removeably attached to said bottom end of said tube.

12. The apparatus of Claim 1 wherein said grille comprises:

a) a planar base frame defined by sides that form a perimeter thereabout;

b) an opening formed in said frame about which, on one side thereof, is located a means for attaching said grille to said tube lower distal end;

c) support arms extending from said base frame in convergent manner to form a tooth-shaped lattice; and,

d) at least one screen formed over said lattice

1 having a bottom support and a top perimeter adjacent and
2 attached to said frame.

3
4 13. The apparatus of Claim 12 wherein said support arms, said
5 lattice, and said screen are molded in a monolithic unit.

6
7 14. The apparatus of Claim 12 wherein are formed a plurality
8 of tooth-shaped screens and each said screen is formed parallel to
9 the other.

10
11 15. The apparatus of Claim 12 wherein are formed a plurality
12 of screens, wherein at least two of said screens are spaced from each
13 other a distance such that a portion of one said screen is always
14 exposed to water in the tank regardless of the position of said other
15 screen.

16
17 16. The apparatus of Claim 12 wherein each said screen is
18 further defined by a bottom support and a top perimeter, said
19 perimeter located adjacent said base frame.

20
21 17. The apparatus of Claim 16 wherein the distance between each
22 said bottom support and said top perimeter of said screen is greater
23 than the depth of the gravel at the bottom of the aquarium tank.

24
25 18. The apparatus of Claim 1 wherein said screen includes a
26 plurality of slots formed therethrough, each said slot having a width
27 sufficient to allow passage of sediment and impurities therethrough
28 and narrow enough to prevent the passage of gravel particles

1 therethrough.

2
3 19. Apparatus for use in draining, cleaning and refilling an
4 aquarium tank comprising:

5 a) an elongated flexible hose having first and
6 second opposite ends;

7 b) a tube including an upper distal end for connec-
8 tion to said first end of said flexible hose, and a lower
9 distal end adapted to be immersed in the aquarium tank
10 such that said lower end may be placed adjacent the bottom
11 of the aquarium tank, said hose and said tube of such
12 length to allow said second flexible hose end to be placed
13 below the level of water in the tank and a partial vacuum
14 to be started to create a natural siphon action to create
15 a flow of water from the tank through said tube and
16 through said flexible hose; and,

17 c) a grille defined by a chamber, including a
18 plurality of apertures formed in the walls thereof, that
19 are narrower than the width of the gravel particles, said
20 grille and chamber attached to said lower distal end of
21 said tube for contact with the gravel for moving the
22 gravel about the floor of the tank such that the gravel
23 particles are forced by said movement to bump and rub
24 against each other outside said tube to dislodge the sedi-
25 ment and impurities that have gathered therewith, and
26 wherein said sediment and impurities are swept by said
27 water flow through said apertures into said chamber up
28 said tube and through said hose for discard without the

entrance of gravel into said tube or hose.

20. The apparatus of Claim 19 wherein said grille has some portion thereof in contact with the water at all times to provide an uninterrupted flow of water through said grille, said tube and said flexible tube at all times that said grille is immersed in the water.

21. The apparatus of Claim 19 wherein said tube is formed of separate pieces that may be attached together in end-to-end fashion.

22. The apparatus of Claim 19 wherein said tube is greater in diameter than said flexible hose.

23. The apparatus of Claim 19 wherein said tube is the same diameter as said flexible hose.

24. The apparatus of Claim 19 wherein said grille is attached to said bottom end of said tube across the full open end of said tube.

25. The apparatus of Claim 19 wherein said grille is permanently attached to said bottom end of said tube.

26. The apparatus of Claim 19 wherein said grille is removeably attached to said bottom end of said tube.

1 27. The apparatus of Claim 19 wherein said grille comprises:

2 a) a planar base frame defined by sides that form a
3 perimeter thereabout;

4 b) an opening formed in said frame about which, on
5 one side thereof, is located a means for attaching said
6 grille to said tube lower distal end;

7 c) support arms extending from said base frame in
8 convergent manner to form a tooth-shaped lattice; and,

9 d) at least one screen formed over said lattice
10 having a bottom support and a top perimeter adjacent and
11 attached to said frame.

12
13 Sub 182 28. The apparatus of Claim 27 wherein said support arms, said
14 lattice, and said screen are molded in a monolithic unit.

15
16 29. The apparatus of Claim 27 wherein are formed a plurality
17 of tooth-shaped screens and each said screen is formed parallel to
18 the other.

19
20 30. The apparatus of Claim 27 wherein are formed a plurality
21 of screens, wherein at least two of said screens are spaced from each
22 other a distance such that a portion of one said screen is always
23 exposed to water in the tank regardless of the position of said other
24 screen.

25
26 31. The apparatus of Claim 27 wherein each said screens is
27 further defined by a bottom support and a top perimeter, said
28 perimeter located adjacent said base frame.

1 32. The apparatus of Claim 31 wherein the distance between each
2 said bottom support and said top perimeter of said screen is greater
3 than the depth of the gravel at the bottom of the aquarium tank.
4

5 33. The apparatus of Claim 19 wherein said screen includes a
6 plurality of slots formed therethrough, each said slot having a width
7 sufficient to allow passage of sediment and impurities therethrough
8 and narrow enough to prevent the passage of gravel particles
9 therethrough.

10
11 34. Apparatus for use in draining, cleaning and refilling an
12 aquarium tank comprising:

13 a) an elongated flexible hose having first and
14 second opposite ends;

15 b) a tube including an upper distal end for connec-
16 tion to said first end of said flexible hose, and a lower
17 distal end adapted to be immersed in the aquarium tank
18 such that said lower end may be placed near the bottom of
19 the aquarium tank;

20 c) a water pump, including a pump inlet for connec-
21 tion to said flexible hose second end, for drawing water
22 through said hose out of the tank;

23 d) a grille, defined by a chamber and including a
24 plurality of apertures formed in the walls thereof that
25 are narrower than the width of the gravel particles, said
26 grille and chamber attached to said lower distal end of
27 said tube for contact with the gravel for moving the
28 gravel about the floor of the tank such that the gravel

1 particles are forced by said movement to bump and rub
2 against each other outside said tube to dislodge the sedi-
3 ment and impurities that have gathered therewith, and
4 wherein said sediment and impurities are swept by said
5 water flow through said apertures into said chamber up
6 said tube and through said hose for discard at said pump
7 outlet without the entrance of gravel into said tube or
8 hose.

9
10 *B 27* 35. The apparatus of Claim 34 wherein said tube is formed of
11 separate pieces that may be attached together in end-to-end fashion.

12
13 *B 28* 36. The apparatus of Claim 34 wherein said tube is greater in
14 diameter than said flexible hose.

15
16 *B 29* 37. The apparatus of Claim 34 wherein said tube is the same
17 diameter as said flexible hose.

18
19 *B 30* 38. The apparatus of Claim 34 wherein said grille is attached
20 to said bottom end of said tube across the full open end of said
21 tube.

22
23 *B 31* 39. The apparatus of Claim 34 wherein said grille is permanent-
24 ly attached to said bottom end of said tube.

25
26 *B 32* 40. The apparatus of Claim 34 wherein said grille is removeably
27 attached to said bottom end of said tube.
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1 41. The apparatus of Claim 34 wherein said grille comprises:

2 a) a planar base frame defined by sides that form a
3 perimeter thereabout;

4 b) an opening formed in said frame about which, on
5 one side thereof, is located a means for attaching said
6 grille to said tube lower distal end;

7 c) support arms extending from said base frame, on
8 the opposite side thereof from said means for attachment,
9 said arms extending in convergent manner to form a tooth-
10 shaped lattice; and,

11 d) at least one screen formed over said lattice,
12 having a bottom support and a top perimeter adjacent and
13 attached to said frame.

14
15 Sub
BB 42. The apparatus of Claim 41 wherein said support arms, said
16 lattice, and said screen are molded in a monolithic unit.

17
18 43. The apparatus of Claim 41 wherein are formed a plurality
19 of tooth-shaped screens, each said screen formed parallel to the
20 other.

21
22 44. The apparatus of Claim 41 wherein the distance between each
23 said bottom support and said top perimeter of each said tooth-shaped
24 screen is greater than the depth of the gravel at the bottom of the
25 aquarium tank.

26
27 45. The apparatus of Claim 41 wherein said screen has formed
28 therethrough a plurality of slots, each said slot having a width

1 sufficient to allow passage of sediment and impurities therethrough
2 and narrow enough to prevent the passage of gravel particles
3 therethrough.

4
5 46. A method of draining a portion of the water from an
6 aquarium tank and with it the sediment and impurities that have
7 gathered with the gravel in the bottom of the tank comprising the
8 steps of:

9 a) providing a flexible hose having first and second
10 opposite ends;

11 b) providing a tube having upper and lower distal
12 ends and connecting said upper distal end thereof to said
13 first end of said elongated flexible hose;

14 c) providing a tooth-shaped grille defined by a
15 chamber whose walls are perforated by apertures that are
16 of a size to allow passage therethrough of water, sediment
17 and impurities but not gravel, and connecting it to said
18 lower distal end of said tube;

19 d) immersing said lower distal tube end of said tube
20 and said grille into the aquarium tank such that said
21 grille may be placed adjacent the bottom of the aquarium
22 tank,

23 e) creating a flow of water from the tank through
24 said perforations into said grille, said tube, and said
25 flexible hose to drain water, sediment and impurities
26 therethrough;

27 f) moving said grille about the gravel at the bottom
28 of the aquarium tank such that the gravel particles are

1 forced by said movement to bump and rub against each
2 other, outside said tube, to dislodge the sediment and
3 impurities that have gathered therewith; and,

4 g) discharging said water, sediment and impurities
5 to a drain.
6

7 47. The apparatus of Claim 46 wherein said means for creating
8 a flow of water from the tank comprises a first means attachable to
9 said second end of said flexible hose for connection to a flowing
10 water source for drawing water through said flexible hose out of the
11 tank.

12
13 48. The method of Claim 46 wherein the step of creating a flow
14 of water from the tank through said grille, said tube, and said
15 flexible hose to drain water, sediment and impurities therethrough
16 includes the additional step of:

17 a) connecting said second flexible hose end to a
18 faucet through a means providing suction when the faucet
19 is opened to allow water to pass therethrough; and,

20 b) opening the faucet to provide a flow of water
21 therethrough and suction to said flexible hose to create
22 the flow of water from the tank.
23

24 49. The apparatus of Claim 47 further including a second means
25 for causing selective and alternative flow of water from the aquarium
26 tank through said tube and said elongated flexible hose to drain
27 water from the tank and, in addition, causing a flow of water from
28 said flowing water source through said hose and said tube for

1 refilling the aquarium tank.

2 *3*
3 *50.* The method of Claim *46* wherein the step of causing a flow
4 of water from the tank through said grille, said tube, and said
5 flexible hose to drain water, sediment and impurities therethrough
6 includes the step of lowering said second end of said flexible hose
7 below the level of the bottom of the aquarium tank and starting a
8 natural siphon flow of water therethrough.

9 *4*
10 *51.* The method of Claim *46* wherein the step of causing a flow
11 of water from the tank through said grille, said tube, and said
12 flexible hose to drain water, sediment and impurities therethrough
13 includes the steps of:

14 a) providing a water pump, having an inlet and an
15 outlet;

16 b) connecting said pump inlet to said second end of
17 said elongated flexible hose and turning on the pump to
18 provide pumping action to draw water, sediment and impuri-
19 ties from the aquarium tank, through said grill, said
20 tube, and said flexible hose; and,

21 c) discharging said water, sediment and impurities
22 through said pump outlet exterior the tank.

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